3.3.4.9 Great Lakes Dune

3.3.4.9.1 Community Overview

Overall, Great Lakes dune flora is an odd mix of geographically restricted habitat specialists and weedy generalists. Among the specialists are a number of endemic plants and animals, some of which occur in no other habitat and in no other region of North America. Others occur wherever dunes occur in eastern North America, including marine environments along the Atlantic Ocean coast.

Among the relatively few plants that are able to successfully colonize active, unvegetated dunes are several drought resistant perennial grasses that produce tough, sand binding rhizomes. Especially important are marram grass, the most prevalent dominant species in Great Lakes dune systems, sand reed, wheatgrass, crinkled hairgrass, and Canada wild rye. Associated vascular plants include beach pea, field sage-wort, common evening-primrose, common milkweed, and a long list of weedy native and exotic species (Curtis 1959).

3.3.4.9.2 Vertebrate Species of Greatest Conservation Need Associated with Great Lakes Dune

Two vertebrate Species of Greatest Conservation Need were identified as significantly associated with Great Lakes dune (Table 3-110). There were not any vertebrate Species of Greatest Conservation Need that were identified as moderately associated with Great Lakes dune communities.

Table 3-110. Vertebrate Species of Greatest Conservation Need that are (or historically were) significantly associated with Great Lakes dune communities.

Birds
Piping Plover
Mammals
Franklin's Ground Squirrel

In order to provide a framework for decision-makers to set priorities for conservation actions, the species identified in Table 3-110 were subject to further analysis. The additional analysis identified the best opportunities, by Ecological Landscape, for protection, restoration, and/or management of both Great Lakes dune and associated vertebrate Species of Greatest Conservation Need. The steps of this analysis were:

- Each species was examined relative to its probability of occurrence in each of the 16 Ecological Landscapes in Wisconsin. This information was then cross-referenced with the opportunity for protection, restoration, and/or management of Great Lakes dune in each of the Ecological Landscapes (Tables 3-111).

- Using the analysis described above, a species was further selected if it had both a significant association with Great Lakes dune and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of Great Lakes dune. These species are shown in Figure 3-22.

Table 3-111. Vertebrate Species of Greatest Conservation Need that are (or historically were) *significantly* associated with Great Lakes dune communities and their association with Ecological Landscapes that support Great Lakes dune.

Great Lakes Dune	Birds (1)*	Mammals (1)
Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type	Piping Plover	Franklin's Ground Squirrel
MAJOR		
Central Lake Michigan Coastal		
Northern Lake Michigan Coastal		
Superior Coastal Plain		
IMPORTANT		
Southern Lake Michigan Coastal		

Color Key

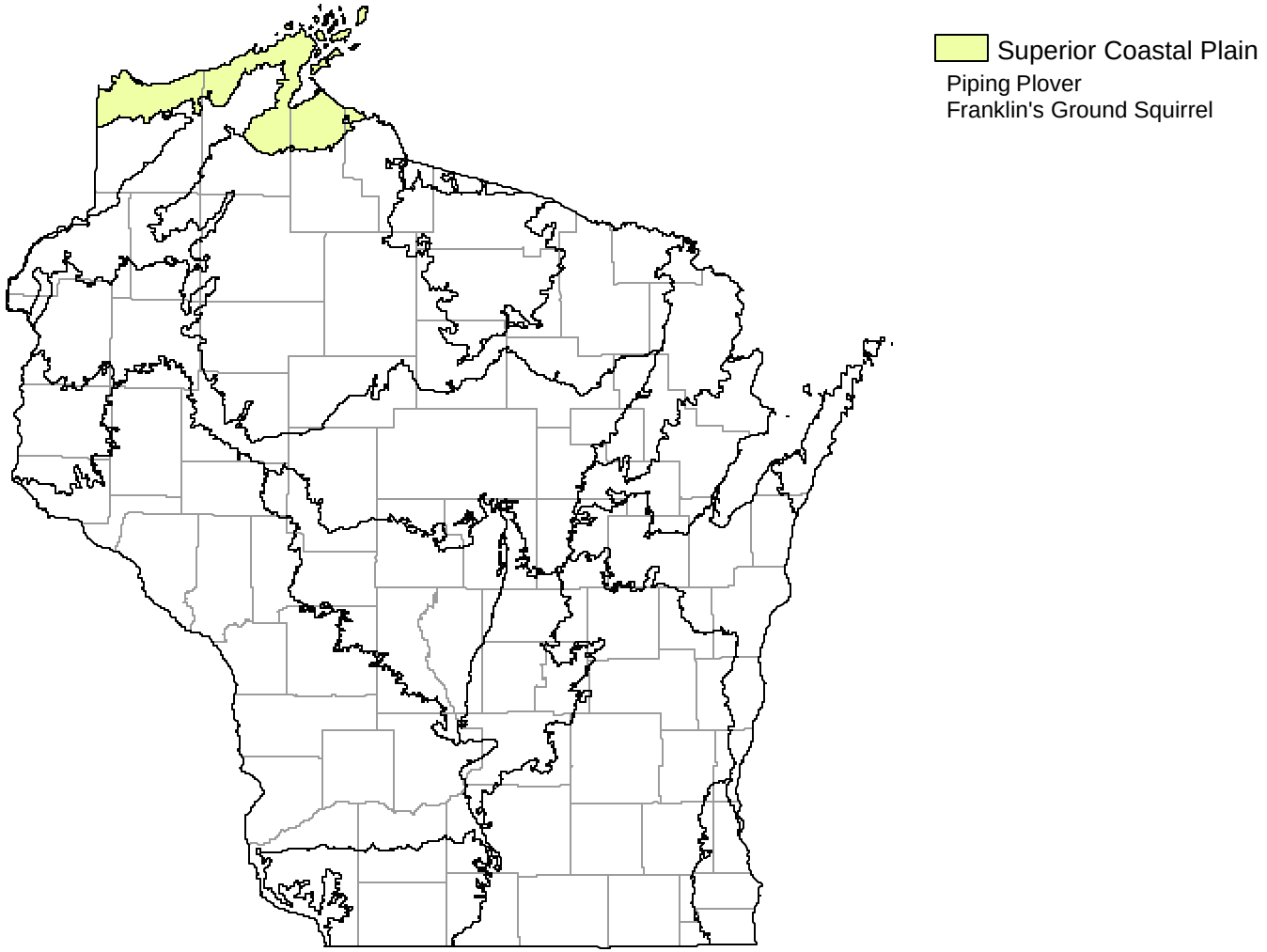
= HIGH probability the species occurs in this Ecological Landscape

= MODERATE probability the species occurs in this Ecological Landscape

= LOW or NO probability the species occurs in this Ecological Landscape

*** The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.**

Figure 3-22. Vertebrate Species of Greatest Conservation Need that have *both* a significant association with Great Lakes dune *and* a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of Great Lakes dune.



3.3.4.9.3 Threats and Priority Conservation Actions for Great Lakes Dunes

3.3.4.9.3.1 Statewide Overview of Treats and Priority Conservation Actions for Great Lakes Dune

The following list of threats and priority conservation actions were identified for Great Lakes dunes in Wisconsin. The threats and priority conservation actions described below apply to all Ecological landscapes in Section 3.3.4.9.3.2 unless otherwise indicated.

Threats and Issues

- Jetties, seawalls, and rip-rap can stabilize shorelines to the point where the sediments needed to replenish and build the dunes are no longer available.
- The presence of exotic (introduced non-native) plants and animals, especially those that are deemed "invasive" have the ability to spread rapidly and overwhelm populations of native species.
- Some native plants can become "invasive" under altered disturbance regimes, and have similarly negative impacts to more sensitive native biota. The dominance of poison ivy in heavily used dune areas is an example of this.
- Off-road vehicle (ORV) use, pedestrian recreational overuse, residential development, road construction, tree planting, and sand mining or other industrial development can also be problems.
- Removal of native vegetation by any means prevents the accumulation of sand and robs dunes of their potential or existing height.
- Pets, such as dogs, can disrupt nesting, resting and foraging birds, if they are allowed to run loose in sensitive areas.
- Overuse can accelerate erosion, destroy plant life, and damage habitat for specialized animals. Constructing buildings and roads, and using off-road motor vehicles in dune areas are particularly damaging.

Priority Conservation Actions

- Development of "Critical Dune Area" or "Environmental Area" designations (as currently used in Michigan) could be useful tools to protect dune systems from destructive activities such as sand mining, excessive mowing, uprooting of endangered plant species, and raking live vegetation from dunescaped areas. Such designations would require the passage of state legislation or county ordinances.
- Implement or continue voluntary programs to monitor for and aggressively eliminate invasive species.

3.3.4.9.3.2 Additional Considerations for Great Lakes Dune by Ecological Landscape.

Special considerations have been identified for those Ecological Landscapes where major or important opportunities for protection, restoration, and/or management of Great Lakes beach exist. Those considerations are described below and are in addition to the statewide threats and priority conservation actions for Great Lakes dunes found in Section 3.3.4.9.3.1.

Additional Considerations for Great Lakes Dune in Ecological Landscapes with ***Major*** Opportunities for Protection, Restoration, and/or Management

Central Lake Michigan Coastal

Kohler-Andre State Park contains one of Wisconsin's best-developed dune systems. Great effort has been expended in recent years to protect the dunes from overuse, stabilize blowouts, and control or remove

invasive or otherwise unwanted vegetation. Coastal dunes also occur on adjacent private lands, which may offer ecological opportunities for additional protection.

Northern Lake Michigan Coastal

Public lands that feature examples of Great Lakes dune include Whitefish Dunes and Newport Beach State Park. Nearby, the 'Shivering Sands' area, from Cave Point County Park to Rocky Point (south of the Sturgeon Bay ship canal), contains some high-quality dunes. Seagull Bar, on the West Shore of Green Bay, at the mouth of the Menominee River near Marinette, contains very small areas of low dune vegetation.

Superior Coastal Plain

Lake Superior dunes are seldom more than a few meters high, but can be associated with special landforms (e.g., coastal barrier spits, baymouth bars, tombolos) that can sometimes extend for miles. Wisconsin Point, a coastal barrier spit at the mouth of Lake Superior on the western end of the lake, features several miles of low dunes, along a narrow zone between an unvegetated beach and a linear forest of pines. Developments on the barrier spit include an access road, seawall along an artificial channel that now separates the states of Wisconsin and Minnesota, and a Coast Guard facility. This site is justly famed for the large numbers and high diversity of migratory birds it attracts, including many rarities.

Beach and low dune complexes are also prominent features at several embayments along the northern margin of the Bayfield Peninsula, and in association with sandspits on the Apostle Islands. The Bad River and Red Cliff Bands of Lake Superior Ojibwa are stewards of significant Great Lakes shorelines that include dune systems and related features. Long Island-Chequamegon Point, an extensive barrier spit that crosses several miles of Chequamegon Bay, contains the most intact and extensive area of beach and dune on western Lake Superior.

Additional Considerations for Great Lakes Dune in Ecological Landscapes with ***Important*** Opportunities for Protection, Restoration, and/or Management

Southern Lake Michigan Coastal

Chiwaukee Prairie State Natural Area and adjacent Carol Beach protect about 0.3 miles of dune ecosystem, including many rare plant species. However, in this landscape the Lake Michigan shoreline has been heavily developed, with extensive seawalls, large jetties, and long stretches of riprap, covering the former beaches and isolating the dunes from their primary source of sand. Long-term viability of the dunes here is doubtful, without major intervention and augmentation. More viable protection options for beach and dune habitats may occur just to the south of Wisconsin, at Illinois Beach State Park. Scattered small pockets of dune exist at a few other locations. These need additional evaluation to determine whether or not they are worthy of conservation action.